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# Beyond Earth Summit '92: Redefining the International Security Agenda

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# Beyond Earth Summit '92
# Redefining the International Security Agenda

Chetan Kumar

In 1978 the people of the Tehri Garhwal district in the Uttar Pradesh province of India launched a protest movement against a federally funded dam project that had been under construction since 1968 According to the organizers of the movement dam related activities had caused wide scale deforestation landslides soil erosion and other forms of ecological adversity in the area thereby resulting in serious disruption of the livelihood patterns of the local populace Despite extensive popular participation in the protest the Indian government continued the project.[1]

By the mid 1980s the protest movement had spawned a separatist demand for carving out a new province called Uttarkhand from the existing Uttar Pradesh province Those advocating this demand declared that the local population was seeking greater empowerment vis à vis the existing federal provincial power structure Simultaneously on behalf of the local population public interest litigation was filed with the Indian Supreme Court by the World Wildlife Fund and other domestic as well as international nongovernmental organizations under Article 32 of the Indian constitution As the decade drew to a close the Indian government had not arranged for a hearing on the subject, the separatist movement in the region had intensified and the number of federal paramilitary troops in the Tehri-Garhwal district had increased substantially Even as the Uttarkhand movement intensified the Indian government faced similar movements spawned by ecological factors which were further complicated by population migrations in the Northeastern provinces of Bihar and Assam These uprisings coincided with disputes between India and Bangladesh on the sharing of the waters of the Ganges river and also over India s dam building activities on the Brahmaputra river which flows through Bangladesh for a large section of its course According to the Bangladesh government Indian activity on the river was leading to disastrous changes in the patterns of flooding rainfall soil erosion and forest growth in the Brahmaputra catchment area thereby causing severe social and economic disruptions for large sections of the Bangladeshi population [2]

Apart from new internal insurgencies and the Brahmaputra/Ganges dispute through the 1980s India was also embroiled in river water sharing disputes of varying intensity with both Pakistan and Nepal These internal emergencies as well as external tensions helped vitiate what Indian officials saw as already being an extremely tense security environment in the South Asian subcontinent While the increases in the Indian defense budget in the 1980s were no doubt prompted by tensions with Pakistan over terrorist violence in the Punjab and Kashmir provinces they also included massive appropriations for paramilitary forces that are largely used to deal with domestic turbulence Ironically the moneys spent on the paramilitary forces by an increasingly nervous Indian state could have been used in economic activities that might have helped alleviate some of the ecological crises that had contributed to an increase in the level of both domestic and external tensions

Many of these problems remained intact as India entered the 1990s Like many other developing countries India participated in the 1992 Earth Summit in Rio de Janeiro and like many of them it joined the chorus in asserting that since the West s resource intensive economies were the most likely culprits in bringing about the global ecological crisis the West should bear the burden for alleviating it Despite transboundary resource sharing disputes with its neighbors India joined other leading developing countries—such as Malaysia Indonesia and Brazil many of whom are currently facing internal ecological problems similar to India s—in asserting the sovereign authority of states over their domestic resources and consequently over the means through which they are exploited [3] Led by India developing countries declared themselves averse to the activities of intergovernmental and international nongovernmental organizations that opposed programs on ecological grounds like the Tehri dam project The developing countries interpreted these activities as

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1 See Shaukat Hassan Environmental Issues and Security in South Asia *Adelphi Papers* 262 (Autumn 1991) 39–40

2 Ibid 16–20

3 See The Earth Wars cover story *India Today* 15 June 1992

infringements of their sovereignty and as complicating what they perceived as being already tough developmental choices

Faced with this opposition most Western participants kept the discourse limited to safe subjects such as ozone depletion and global warming and diplomats and scientists traded repartee over the scientific validity of the data on these matters While the sparse Agenda 21 document that was released at the end of the Summit made references to issues such as soil degradation resource depletion and population displacement, substantive negotiation over the environmental fallout of these crises was not accomplished at the Summit—even though given the fact that the conference was billed as the UN Conference on Environment and Development these issues should have been at the top of the agenda [4]

While concerted US leadership in this regard might have made a difference US diplomats at the meeting repeatedly made it clear that they thought the entire affair was redundant particularly since international instruments are already in place to deal with issues such as ozone depletion biodiversity conservation and global warming [5] While these global environmental problems would no doubt threaten the entire world system if not adequately dealt with what was clearly missing at the Summit was an empirically grounded understanding of the linkages between more localized ecological crises and the security of nation states

This brief paper attempts to delineate these linkages through a three step *modus operandi* First, through an exposition of the ongoing changes in the theoretical understanding of international security Second through an application of this new understanding to the study of the role of ecological crises in the international system And third through the positing of an analytical framework through which this role might be better studied both theoretically and empirically

## Theory and International Security

The study of international security has mostly been the preserve of the realist school of scholars in which they have posited the nation state as being the centerpiece of the international system its security concerns have been the primary focus of international security studies Since the primary security concern of most nation states is presumably their long term survival capabilities the latter have been the focus of most theorizing in this area [6]

Operationalizing security however has proved to be a far more difficult task Since it is difficult to empirically determine at what point a nation state is most likely to consider itself completely secure most scholars have tended to equate security with the perceived power of a state to defend itself from attack or to prosecute war against other states in order to prevent attack Security studies have thus tended to largely become studies of war of ways of preventing war and of the various constituents of power [7]

Since power is a concept that has presented just as many empirical difficulties in terms of pinning it down scholars have tended to treat it as being either an aggregate of a state s social economic and military resource indicator—as compared to the indicators of other states—or an estimation of a state s place in a perceived international power structure For instance in a bipolar structure a state s power may depend upon its dependence upon a particular pole or the degree of independence that it might possess vis a vis either pole

Whatever the forms of measurement the equation of security with accumulated power—seen for the most part as the ability of a state to prosecute war or to militarily defend itself—has meant that the field of international security studies has rarely ventured beyond the study of military security

On the other hand the study of ecological crises and the international system has largely been the preserve of the liberals among international relations theorists For the most part the focus of such a study has been the cooperative processes associated with attempts to solve these crises All of the constructs associated with

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4 See Rio Coming Together To Save the Earth cover story *Time* 1 June 1992

5 For a strong argument contrary to the official US stance at the summit see Janet Welsh Brown ed *In the US Inte est Resources Growth and Security in the Developing World* (Boulder Colo Westview Press 1990)

6 See Hedley Bull *The Anarchical Society* (London Macmillan 1977)

7 See Alfons Sollner German Conservatism in America Morgenthau s Political Realism *Telos* 72 (Summer 1987) 161–72

liberal theorizing—international regimes epistemic communities integration and so on—have been brought to bear on the study of international cooperation and environmental conservation Within the plethora of theoretical and empirical literature on international environmental cooperation the literature on international environmental *conflict* has been relatively sparse

Given the focus of international security studies on military conflict and the study of international environmental politics on supranational cooperation it is not surprising that scholars from the two areas have rarely found little common ground. A gradually changing agenda for international security studies however might soon change that. Three changes in this regard are worth noting [8]

The first change involves attempts to understand the security of states in terms of their insecurity While it may be difficult to empirically pinpoint the moment at which a state considers itself secure the various factors that might contribute to a state s insecurity are far easier to pinpoint. These factors do not just arise from the actions of other states but from events at both the global as well as the subnational levels At the subnational level for instance it is not just states that feel insecure societies and social groups can experience insecurity too thereby adding to the overall insecurity of the nation states that preside over them Colloquially speaking this new dimension of insecurity opens up a whole new can of worms For example the excessive pursuit of security by nation states in the short term could detract from democratic practice as well as the pursuit of socioeconomic development Inducing further societal insecurity in turn could add to the insecurity of the state in the long term [9] Similarly a state facing internal revolt might pursue an aggressive military policy externally in an attempt to unite domestic populations through a reaffirmation of national identity At the global level worldwide ecological crises such as ozone depletion and the rise in sea levels due to global warming might have differentiated local impacts thereby leading to international tensions through population migrations and refugee flows

The fact that nation states might consider themselves insecure due to factors arising at the global national and the subnational levels takes the study of international security beyond the dynamics of interstate conflict and power struggle Some scholars have suggested that the notion of security be expanded to include an understanding of levels of security along the lines of levels of analysis [10] Such theoretical expansion it is believed could lead to a better understanding of those factors that increase the insecurity of nation states

The second change in international security studies involves an understanding of the power whereby nation states could keep insecurities at bay Empirically speaking power is increasingly measured not in terms of an aggregation of resources or military might but in terms of the states ability to mitigate those factors that increase their insecurity In order to be effective such mitigation would require that states bring appropriate resources to bear in specific issue areas Not all problems can be solved through bilateral bluster possession of nuclear weapons for instance does not translate into effectiveness in multilateral trade negotiations even though the latter attribute might be more necessary for a state s long term viability than the former

While this issue has been partially addressed in the current literature on international security through the notion of fungibility of power in other words the ability to translate effective power across issue areas it has not been considered in the light of states abilities (or lack thereof) to deal with specific insecurities For instance while a state may be able to translate its capacity for effective negotiations in the area of nuclear proliferation to that of multilateral trade this translation still does not imply that it will be able to deal comprehensively with terrorism atmospheric pollution ethnic turbulence resource depletion or some other source of insecurity This is because the removal of insecurity might not be a dependent variable of a state s possession of fungible power resources but of the role of other actors (national subnational or intergovernmental) in a particular issue area For instance the dispute between India and Bangladesh might not

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8 See Friedrich Kratochwil The Challenge of Security in a Changing World *Journal of International Affairs* 43 1 (Summer–Fall 1989) 119–41 Also see R B J Walker State Sovereignty Global Civilization and the Rearticulation of Political Space World Order Studies Program *Occasional Paper No 18* (Princeton N J Princeton University 1988)

9 See R B J Walker *One World Many Worlds Struggles for a Just World Peace* (Boulder Colo Lynne Reinner 1988)

10 See Marvin G Weinbaum Competing and Cooperating Security Regimes in South Asia paper presented at the MCISS Workshop on South Asian Security Chicago 25 May 1991

be resolved unilaterally by either side it might not be resolved at all without the mediation of an international environmental actor such as the United Nations Environment Program A neutral mediator may be necessary to carry out independent studies of the Brahmaputra/Ganges catchment areas upon which any reliable solution could be based [11]

The key point here is that in an issue area different actors may because of the transboundary nature of a problem face insecurity together The only practical way to deal with this would be through multilateral action that enhances security for all parties simultaneously In other words security need not be a zero sum game for different actors the increase in the security of one actor need not detract from the security of another contrary to the billiard ball perspective of traditional realist s theorizing in this regard [12]

The third change in international security studies is related to a broader ongoing theoretical evolution in the discipline of international relations [13] As with international security studies international relations has focused on the nation state as the definitive unit of the international system Interstate interaction has been considered as being the primary form of interaction in the international system and students of war as well as of international cooperation have studied these phenomena in light of the motives and actions of states Consequently students of international security have largely limited themselves to states in their theoretical and empirical search for the sources as well as the solutions to the problems regarding security To the extent that the role of international organizations in security related issues has been studied it has been limited to intergovernmental organizations the actions of which have been explained in terms of the motives of their member states

These perspectives however are evolving as scholars see the transition of the world system from being state centric (or one where the state is the primary center of international activity) to one where the state is only one of the several important centers [14] While traditionally the juridical and territorial sovereignty of states has been assumed to be justification enough for awarding them the pride of place in the world system the increasingly important role of transnational and subnational actors has led to an understanding of the importance of these actors in terms of policy autonomy Increasingly the power of actors is measured in terms of their functional ability to maneuver around as well as manipulate the structural relationships within issue areas Titular sovereignty is no longer a guarantee that a state will predominate within an issue area For example while the United States is the dominant actor in the area of rapid military deployment, the International Monetary Fund pursues a strongly autonomous agenda in the area of international finance and transnational corporations play an equally autonomous role in the transboundary flow of goods and services

It must be pointed out here that the emergence of autonomous non state actors does not imply the eclipse of the state system or of the power of states Given their monopoly over the use of military force which is increasingly under attack from transnational irredentist and ethnic networks states still retain their power in those issue areas that involve such usage What *has* changed is that the overall policy domain of the state has been severely constricted because of the emergence of several issue areas where the state as traditionally organized is limited in its capacity to generate outcomes Three factors can be pinpointed as being responsible for these changes in the world system

At the subnational level the world population is in the midst of a skills revolution that has drastically altered the manner in which people create store and distribute information The creation of worldwide computer networks and the ease with which larger numbers of people have access to stored and printed data has made state control over specialized knowledge a thing of the past Coupled with satellite technology and the ubiquitous fax machine the skills revolution has served to not only make national borders more porous [15] but

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11 For some arguments along these lines see Patricia M Mische Ecological Security and the Need to Reconceptualize Sovereignty *Alternatives* XIV (1989) 389-427

12 See Security Sovereignty and the Challenge of World Politics R B J Walker *Alternat ves* XV (1990) 3 27

13 This discussion draws largely upon James Rosenau *Turbulence in World Politics A Theory of Continuity and Change* (Princeton N J Princeton University Press 1990)

14 See Forest L Grieves ed *Transnationalism in World Politics and Business* (Tarrytown N Y Pergamon Press 1979)

15 See particularly Stephen J Rosow The Forms of Internationalization Representation of Western Culture on a Global Scale *Alternatives* XV (1990) Also see Ronnie D Lipschutz Heteronomia The Emergence of Global Civil Society paper presented at the meeting of the International Studies Association Atlanta 31 March–4 April 1992

has helped reduce the absolute control that governments can exercise over their citizenry New information and knowledge are created and disseminated and used to further political or economic causes at rates that often overwhelm governments capacity to control them

At the global level the key development has been the emergence of various problems that fall within the genre of *global problematique* problems such as human rights abuses environmental degradation nuclear proliferation trade disputes currency instabilities underdevelopment terrorism ethnic turbulence and civil conflict [16] The increasing interdependence created by global economic integration entails collective responses for the *global problematique* on the part of nation states These collective responses often take the form of international mechanisms that center around intergovernmental organizations While the latter have states as members and are formally constituted so as to reflect states agendas they nevertheless provide fertile breeding grounds for transnational interaction In that intergovernmental organizations bring together individuals from around the world in order to formulate relevant policy they allow these individuals to develop and propagate agendas that might not coincide directly with those of the member governments

Interdependence has also caused the various problems constituting the *global problematic* to be propagated throughout the world system through the various points of interconnection with a rapidity that has often overwhelmed the capacity of the states policy apparatus to deal with them [17] While crises such as the perceived ecological crisis have an obvious global basis less obvious ones such as ethnic turbulence now appear to be constantly overflowing state boundaries and often rocking the entire world system [18] Into the performance gap between mushrooming crises and inadequate state capacity has moved a variety of increasingly autonomous actors—the bureaucracies of intergovernmental organizations NGOs (both domestic and international) transnational networks that do everything from conserving the environment to laundering drug money elite policy communities and even powerful individuals

Furthermore the solutions to many of the cascading crises in the contemporary world system often require rapid organizational and technological innovations that many isolated and inertial state bureaucracies are unable to generate In that transnational interaction brings together diverse skills and technologies it facilitates rapid innovation This is particularly true in the areas of environment conservation currency management and sustainable development.

The changes at the subnational and global levels have also led to changes at the interstate level In a state centric system as the sovereign and final arbiters of the destinies of their constituents states exercised authoritative control over all interaction between their citizens and those of other states In theory as well as practice interaction at the global level was interstate interaction In the emerging world system this state centricity is no longer universal While theoretically speaking state power exists as it always has in practice interaction at the global level is increasingly transnational[19] interaction This change can be attributed to the remarkable coincidence of the skills revolution at the subnational level with the emergence of cascading crises at the global level

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16 In this regard see Samir Amin Giovanni Arrighi Andre Gunder Frank and Immanuel Wallerstein *Dynamics of Global Crisis* (New York Monthly Review Press 1982) Also see Immanuel Wallerstein *Geopolitics and Geoculture Essays on the Changing Wo ld System* (Cambridge England Cambridge University Press 1991)

17 See particularly Gottfried Mayer Kress Chaos and Crises in International Systems paper presented at SHAPE Technology Symposium on Crisis Management Mons Belgium 19–20 March 1992

18 See Ethnicity the State and the New International Order by Cynthia H Enloe in John F Stack ed *The Primordial Challenge Ethnicity in the Contemporary World* (New York N Y Greenwood Press 1986) Also see John F Stack ed *Ethnic Identities in a Transnational World* (New York N Y Greenwood Press 1981)

19 For definition purposes it must be pointed out that while international interaction refers to relations between legitimately constituted governments (and is therefore interstate interaction) transnational interaction refers to relations between nongovernmental actors across country boundaries

The various changes in the field of international security studies [20] as well as in the discipline of international relations that have been prompted by the ongoing changes in the world system could help bridge the gap that has hitherto existed between the students of international security and international environmental politics First understanding that the security problems of states derive from factors at all levels of world politics and increases the *insecurity* of states could lead to a greater appreciation of the ecological causes of insecurity This is particularly so given that these causes often do not originate in interstate relations but at the global or the subnational levels

Second, the reconceptualization of power in terms of a state s functional ability to rid itself of specific kinds of insecurity in different issue areas allows analysts to move away from absolutist definitions of security that often do not extend beyond military security or war related activities In that a state might try to alleviate insecurity in a particular issue area through positive sum collective bargaining with other actors the study of attempts to increase security need not necessarily imply the invocation of Hobbes Both these developments allow analysts to incorporate ecological crises within the range of problems that could detract from a state s security it also allows them to include environmental cooperation within the purview of attempts to increase states security

Finally the emergence of numerous autonomous actors to challenge state centrism leads analysts to an understanding of the fact that both environmental problems as well as solutions to them can emerge entirely from transnational as opposed to international interaction at the very least the process of mitigating ecological threats to state security is likely to involve a plethora of non state actors

## Theory and Environmental Security

Some observers will assert that even if the theoretical and analytical understanding of security were to be broadened to cover ecological threats doing so would seriously dilute the term in its practical usage After all cutting down trees does not kill people in the same way as nuclear detonation does [21] However the fact remains as will be shortly demonstrated that ecological crises could pose just as great a threat to the survival capacity of a state as might a neighboring state s nuclear weapons

The literature that deals with the social and political aspects of environmental crises is so varied that trying to pinpoint and analyze the specific threats to state security could be a gargantuan task A beginning however can be made by identifying the components of an ecological crisis that might threaten state security

Every ecological crisis starts with certain kinds of human activity that have an impact on the environment This impact may or may not be substantial enough to prompt major environmental changes These changes in turn depending upon certain factors might lead to large scale social disruptions Finally social disruptions might cause certain kinds of conflict It is only when conflict is created that we have a threat to security

The chain of causation is thus marked by a transition from human activity to environmental changes from environmental changes to social disruptions and from social disruptions to conflict [22] At each stage various intervening variables may allow or prevent the transition to the next stage as well as determine the intensity of the next stage The key to analyzing environmental threats to security lies in determining these variables

### Political Variables

The variables at each stage can be broadly divided into five categories The first set of variables can be termed *political* variables These variables involve the nature of the political system under which the chain of causation

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20 For further elaboration of these changes see George Sorensen Peace and Security Concepts and Strategies in Chadwick Alger and Michael Stohl eds *A Just Peace Through Transformation Cultural Economic and Political Foundat ons for Change* (Boulder Colo Westview Press 1988)

21 For more arguments against linking ecological crises with national security see Daniel Deudney The Case Against Linking Environmental Degradation and National Security *Millennium* 19 (3) (Winter 1990) 461 76

22 This chain of causation is along the lines of the one identified in Thomas F Homer Dixon On the Threshold Environmental Changes as Causes of Acute Conflict *International Security* 16 (2) (Fall 1991)

leading to an ecological crisis might occur For instance while large dam projects are associated with problems relating to population displacement forest submersion and ecosystem damage in the developing world [23] their consequences are hardly as inimical in the developed world The Tennessee Valley Authority projects in the United States have not had even a fraction of the adverse social consequences that the similarly scaled Narmada Valley projects in India have had[24] (even though the long term ecological impact could be equally disastrous in either case) [25] The answer lies partly in the responsiveness of the political system to the affected populations While the Indian system has proved unable to respond to the needs of the displaced populations (most of which are aboriginal and therefore marginalized socially as well as economically from the societal mainstream) [26] a well developed infrastructure for the maintenance of civil rights and due process in the United States has ensured that the affected populations are adequately compensated The nature of the political system also determines the extent to which the affected populations are likely to use violent means to turn upon the state While such populations in parts of the Philippines India Brazil Malaysia and Indonesia have taken to arms one hardly expects to see the lumberjacks of Oregon take up arms against the United States government in retaliation for the latter s protection of the spotted owl

## Level of Technology

A second group of variables involves the *level of technology* that might be brought to bear on a particular economic activity The large dam projects in the developed West for instance are implemented after sophisticated environmental impact surveys that minimize adverse short term environmental fallout Constant monitoring often employing complex computer simulations and forecasting ensures that long term ecological effects are anticipated and prepared for In contrast, various large scale river development projects in Thailand [27] Ethiopia Egypt, and in the Gujarat province of India have resulted in increased soil salinity desertification and ecosystem damage to the point where the very agricultural activities that they were meant to foster have been seriously disrupted [28] While this may not always be so (for instance Costa Rica while possessing a far lower level of technological and economic development than either India or Brazil has a better environmental record than either of them) the level of technology might be related to the overall level of economic development of a country Also the economic infrastructure of a society might make for a faster recovery in the case of ecological disasters For example the travails of Florida residents in the wake of Hurricane Andrew were of a lower intensity than those of people in Bangladesh who are affected by annual flash flooding

Some observers might point out that centering analyses of ecosystem damage caused by large dam projects on the developing countries alone is unjustified particularly given the fact many of these projects are funded by Western dominated institutions such as the World Bank Besides the intensive and nonsustainable land use that large dam projects support in general has led to soil erosion of disastrous proportions even in parts of the American West While both these observations are valid the fact remains that though the initial designs for dam projects in the developing world that are funded by aid institutions include adequate environmental procedures (or they would not be eligible for such funding) the lack of adequate technology and political will on the part of the developing countries prevents these procedures from being fully implemented Also while the long term ecological fallout of large scale intensive agriculture might be the same in both the developing and the developed worlds the presence of adequate technological and socioeconomic backups in the latter forestalls the social disruptions caused by such fallout

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23 See Shaukat Hassan Environmental Issues and Security in South Asia 23 37 38

24 See Baba Amte *The Case Against Narmada and the Alternative Perspective* (Anandwan India Narmada Bachao Andolan 1990)

25 For a brief analyses of the adverse long term ecological consequences of US agricultural practices see Jack Doyle *Altered Harvest* (New York NY Penguin Books 1984) Also see reports in *The New York Times* September 30 1984 and *The Global 2000 Report* (New York NY Penguin Books 1982)

26 For an assessment of the Sardar Sarovar Dam project in Central India in this regard see Bradford Morse et al Sardar Sarovar Report of the Independent Review *Resource Futures International* (1992)

27 See B S Cox Thailand s Nam Choam Dam A Disaster in the Making *The Ecologist* 16 (6) 212–20

28 For further details on the adverse effects of large scale dam projects in the developing world see Edward Goldsmith and Nicholas Hildyard *The Social and Environmental Effects of Large Dams* (Cornwall England Wadebridge Ecological Center 1986)

## Social Systems

A third group of variables involves the *social system* in which a particular set of human activities that affect the environment might be embedded. Certain populations might be culturally more prone to a militant response than others For instance many aboriginal populations in parts of India regard their forest habitat as not just a place of residence but of considerable religious and cultural significance Similar attitudes can be found among most rain forest populations throughout the world and foster a greater amount of militancy in response to displacement than might be found in the West [29] Also given their socioeconomic marginalization many aboriginal populations find it difficult to integrate with the population groups in those areas they are forced to emigrate to and might even spark a militant reaction among the latter For instance displaced populations from Bangladesh crossed over into the Indian province of Assam in the decades leading into the 1980s By the mid 1980s the reaction among the indigenous Assamese population had sparked off a full blown militant insurgency targeted both at the immigrants and the Indian state that had offered them refuge Not only was the security environment in a key border province vitiated, Indo Bangladesh relations were soured for years [30] Elsewhere tribal groups displaced by forest development activities in Brazil and the Philippines[31] face cultural extinction in the alien urban environments into which they have been forced following their displacement

Societal factors more so than technology or the level of economic development, can also determine the extent to which a society or a country is able to adjust to resource depletion For instance a society that is accustomed to certain patterns of consumption might, when faced with the depletion of resources that sustain those patterns opt for conflictual strategies for augmenting the depleted resources rather than develop alternatives The lack of a US initiative in developing alternatives to petroleum even as it uses military might to maintain its oil supplies can be seen as a case in point

Yet another societal factor that might affect the course of ecological crises involves the extent to which a society s internal structure might permit the organization of groups whereby militant opposition to social disruptions might be expressed For instance the pluralistic and multilayered societies of both Burma and India permit the formation of militant groups that provide a conduit for displaced populations to vent their frustration through adopting adversarial relationships vis a vis other groups Such groups are quite likely to cross national boundaries in the pursuit of their objectives Rebels in the Chittagong hills of Bangladesh clash often with Indian border forces[32] and rebel armies from both sides of the border crisscross the Indo Burmese frontier Elsewhere the Armenian residents of the Nagorno-Karabakh region of Azerbaijan who see themselves as having borne the brunt of the adverse side effects of the latter s attempts to develop its natural resources have embroiled Armenia and Azerbaijan in a deadly war in an attempt to fulfill their irredentist aspirations

## Type of Actors

The fourth set of factors pertains to the *type of actors* that might be associated with an ecological crisis Beyond the presence of the state actors subnational as well as transnational actors can make a crucial difference as to whether an environmental crisis actually leads to social disruptions and whether these social disruptions result in conflict For instance when the extent of the ozone depletion became evident in the mid 1980s timely direction by the leaders of the European Community and particularly by British Prime Minister Margaret Thatcher resulted in a series of treaties and conventions leading to the gradual phasing out of chlorofluorocarbons the chemicals primarily responsible for depleting atmospheric ozone The key actor in these events that might have staved off unprecedented social disruption worldwide was a transnational network of scientists and policy makers—referred to in international relations literature as an example of a transnational

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29 While militant response to environmental displacement has been reported among the native populations of North America and Australia the size of the populations involved and therefore the security risk is considerably greater in the developing world

30 See Sanjoy Hazarika Bangladesh and Northeast India Migration Land Pressure and Ethnic Conflict paper presented at a workshop on Environmental Change Population Displacement and Acute Conflict Ottawa 18–19 June 1991

31 See Gareth Porter and Delfin Ganapin Jr Resources Population and the Philippines Future A Case Study *World Resources Institute Paper No* 4 1988

32 See Shaukat Hassan Environmental Issues and Security in South Asia 25

epistemic community [33]—that lobbied extensively with the Western governments to get the relevant international conventions prepared and signed and crucial domestic legislation enacted [34]

On the other hand a network of transnational as well as subnational actors played a crucial role in ensuring that the World Bank funded POLONOROESTE project in Brazil s Amazon region was stopped before clearing of the Amazon rain forests resulted in social as well as ecological disruptions of massive proportions [35] The campaign which occurred in the mid 1980s involved many domestic nongovernmental organizations that took on the task of resettling and providing for displaced populations which probably forestalled large scale and endemic social violence Similar campaigns are currently ongoing in India Malaysia and Indonesia.

Supranational or intergovernmental actors can also play a role in mitigating the adverse security fallout of ecological crises In South Asia the South Asian Association for Regional Cooperation (SAARC) has been attempting to make linkages between disarmament, environment economic development and the national security of developing countries[36] both in terms of policy discourse as well as practice Interestingly enough it has been aided in this task by international organizations of every hue and color

For instance the efforts of international nongovernmental organizations (or NGOs) UN agencies domestic NGOs as well as various technical experts led to a collective attempt on the part of SAARC to address the environmental security issue in South Asia at its third meeting in Kathmandu in 1987 The government delegates found that they were short on data on which to base constructive decisions at a regional level Characteristically the member governments not only lacked the technical expertise to carry out adequate region wide or national surveys they also as per the priorities of the old nation state system were too driven by bilateral rivalries to collectively formulate a comprehensive plan on the subject

Here is where the role of transnational interaction became evident After having been persuaded to do so by various NGOs several intergovernmental agencies stepped in The Food and Agricultural Organizations (FAO) helped formulate environmental legislation for Bhutan The World Bank the United Nations Development Programme (UNDP) the FAO and the Economic and Social Commission for Asia and the Pacific (ESCAP) began to provide funding and technical assistance for many regional projects on the environment and development. The International Union for Conservation of Nature and Natural Resources (an NGO) helped Pakistan prepare its country report for SAARC s regional initiative on the environment The Danish International Development Agency pitched in with similar help for Bangladesh and India [37]

More importantly these agencies did their work not in collaboration with the various governments—except at a superficial official level—but in coordination with NGOs that are engaged in environmental and development work Given the fact that these NGOs operate at the grassroots level they are often better suited to provide relevant details on the impact of development strategies on local biological and social environments than the urban technocracies Of interest here is the fact that at every stage of this process from agenda setting to actual execution NGOs representing assorted citizenry played a key role They collaborated with external agencies in a direct and autonomous fashion and not at the behest of national governments In most cases given the gravity of the environmental security dilemma in South Asia states only followed in the footsteps of civic society Given the gradual transition of the world system from being a state centric one to a more decentralized form this is only to be expected What is of significance here is that while these interactions were promoted and sustained by international organizations they helped contain some of the *interstate* tensions that had cropped up in the wake of the ecological crises of the 1980s It is too early to say whether—in the absence

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33 In this regard see Peter Haas ed special issue of *Internat onal Organizat on* 46 (1) (Winter 1992) devoted to the study of epistemic communities

34 See especially Peter Haas Banning Chlorofluorocarbons Epistemic Community Efforts to Protect Stratospheric Ozone *International Organization* 46 (1) (Winter 1992)

35 See Bruce Rich The Emperor s New Clothes The World Bank and Environmental Reform *World Policy Journal* (Spring 1990)

36 In this regard see Disarmament Environment and Development and Their Relevance to the Least Developed Countries *Research Paper No 10* United Nations Institute for Disarmament Research 1991

37 These details are drawn from Shaukat Hassan Environmental Issues and Security in South Asia International Institute for Strategic Studies (IISS) *Adelphi Paper* 262 (Autumn 1991)

of political will on the part of the region s governments—the international organizations involved in will be able to attain the resolution of key environmental problems However by helping initiate and sustain a constructive dialogue they have definitely contributed to keeping a lid on the tensions

World Systemic Visibility

The fifth and final set of factors affecting the transition from environmental crisis to social disruption and conflict has to do with the *world systemic visibility* of a particular issue The greater the visibility of an issue the more likely it is to attract international attention and therefore become the focus of attempts to resolve it before it results in widespread ecological damage social disruption and conflict. For instance the clearing of the Amazon rain forests [38] the depletion of the ozone layer [39] and the radioactive fallout of nuclear accidents are three examples of issues that are likely to cause widespread social disruption and conflict worldwide and have cascading and uncertain transboundary effects International attempts to resolve these issues has therefore been considerably more intensive than efforts to deal with for instance the civil war in Sudan or with the numerous insurgencies arising out of the social disruption caused by the environmental holocaust perpetrated by the former Soviet Union on its constituent republics

Summarizing the discussion so far ecological crises that affect state security can be seen as consisting of four elements—human economic activity ecological changes resulting from this activity social disruptions prompted by these changes and finally the conflict that ensues from these disruptions The causal chain leading from human economic activity to deadly conflict involves three transitions—human economic activity to ecological damage ecological damage to social disruption and from social disruption to conflict Each of these transitions may or may not occur depending upon the following five sets of variables—the nature of the political systems involved the level of technology in the surrounding society the social system in which the causal chain is embedded the types of actors involved in the various interactions and the world systemic visibility of a particular environmental issue

Drawing upon the various examples of environmental conflict given in the above discussion ecological threats to state security can be defined in terms of two categories—threats originating at the global level and threats arising from the subnational level Threats originating at the global level can be further subdivided into two categories threats that might heighten interstate tensions by upsetting delicate power balances through differentiated local impacts—as might happen in South Asia were global warming to cause sea levels to rise and submerge parts of Bombay India but leave Karachi Pakistan undisturbed[40]—and threats that might cause large scale transboundary population movements as large areas become uninhabitable—for instance the rapidly expanding ozone hole over Antarctica has caused populations at the southern edge of the Australasian and Latin American land masses to move northwards

Similarly threats from the subnational level can be further subdivided into two categories—those that adversely effect state security through insurgent populations and those that arise from the transboundary migration of populations displaced by the ecological mismanagement of development projects or by rapid resource depletion through nonsustainable consumption patterns

Whatever their origins ecological threats to state security only acquire their final form at the end of the causal chain cited earlier In that this chain is formed after three transitions that depend upon certain variables varying these variables in the right amounts could prevent all of the transitions from occurring thereby averting ecological threats to state security In the event the causal chain has been completely formed and the security threat has fully materialized any crisis management measures would require a knowledge of those values of the variables that permitted the crisis to occur in the first place Subsequently the restoration of the variables to

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38 See Peter Gleick The Implications of Global Climatic Changes for International Security *Climate Change* 15 (1 2) (October 1989) 309 325

39 See J C Farman B G Gardiner and J D Shanklin Large Losses of Total Ozone Reveal Seasonal ClO/NO Interaction *Nature* 315 (6016) 207–210

40 In this regard see *Republic of Maldives Implications of Sea Level Rise* (The Hague Netherlands Ministry of Economic Affairs 1989) 17

values that might have prevented the threat from materializing could be attempted though given long term alterations in resource use patterns these attempts might only be successful in a very limited fashion Therefore the key here lies not so much in damage control as in prevention

## Preventing Environmental Security Threats

The first step in solving a problem lies in acquiring reliable knowledge about the problem Knowledge of ecological threats to state security is still anecdotal what is needed is a database that details possible threats along the lines of the causal chain and the three transitions described earlier The database would provide knowledge about the values of the five critical variables in each situation that could potentially be an ecological crisis as well as about the critical points where the values of the variables permit transitions to the various stages in the causal chain

While alterations in the values of the five variables as well as the manner in which they are to be effected would vary from case to case certain general suggestions can be presented here

First with regard to the political variables the key emphasis should be on increasing the responsiveness of political systems to environmental concerns While this is something that can only be accomplished from within a system international aid groups can provide grants for the development of strong environmental advocacy groups (as in most of the developed West) in the developing world that have the capacity to generate and push practical environmental legislative agendas In nondemocratic systems governments new found respect for their populations in the aftermath of the worldwide democracy wave could serve as a starting point for making them more responsive to ecological concerns In that responsive governments will be able to prevent frustrated populations displaced by environmental catastrophes from resorting to militancy the interests of interstate security would be well served

With regard to the second variable the level of technology the provision of environmental impact assessment technology to the developing countries would no doubt help in preventing development projects from turning into ecological disasters Fundamental change with regard to providing the appropriate technological backdrop for ecologically sound development practices however would only come about with the generation of appropriate local use technologies that do not simply attempt to ape Western technology but can promote development that is compatible with the local biological and social environments An example will illustrate this

As with some of their colleagues in the former Soviet Union during the Cold War Indian scientists and environmental experts have made vigorous use of leading international scientific journals not only to promote their concerns regarding the scientific nonviability of development strategies that degrade biological and social environments but also to develop a consensus with their similarly concerned colleagues in other parts of the world Examples of such consensus building include the international acceptance of the work of Amulya Reddy and his colleagues at the Indian Institute of Science (IIS) in Bangalore [41]

When the Indian state of Karnataka proposed a plan for increasing the electricity generating capacity of the state four times over by the year 2000 at a cost of $17 billion the IIS team developed an alternate plan that would cost only $6 billion provide electricity to all homes (something the government had not planned on doing) and cut carbon emissions by 100 000 tons over a ten year period The Reddy plan received widespread international support and the Karnataka government was eventually forced to concede that it not only had the wrong plan its plan was based on outmoded concepts and technologies that the bureaucracy bound state had not bothered to replace

41 See Marnie Stetson People Who Live in Green Houses *World Watch* (September–October 1991)

Transnational interaction of the kind that led to the acceptance of the Reddy plan seems to be the most appropriate way to encourage the use of development technologies that will not result in the creation of long run security threats [42]

With regard to the third set of factors or the societal variables the most urgent need would be to mitigate tendencies towards violent responses on the part of displaced populations Since these tendencies are largely due to a frustration with government for failing to provide for resettlement, an appropriate step for the international community might be to bring these populations within the purview of the various international conventions dealing with refugees In many developing countries the state is either incapable of caring for these people or tends to neglect them if they are socioeconomically marginalized to begin with

Given the tangible linkages between boundary tensions sectarian conflict, and uprooted populations it would behoove the United Nations and its various agencies to provide for ecological refugees in the same manner as it would for political and economic refugees While such UN involvement would be no substitute for the refugees not having to leave their land in the first place it is clear that international aid might just dampen frustrations to the point where they do not flare up To the extent that the refugees do not have legal recourse within their own countries they could be offered the protection of international law under the relevant provisions regarding the United Nations mandate to maintain international peace and security

It is with regard to the fourth set of variables the type of actors that the world community could be most effective The ways in which various intergovernmental organizations could facilitate dispute resolution has already been described Additionally numerous international as well as domestic NGOs provide advice support and technical help to similar groups in the developing world that wish to promote environmental security through the use of appropriate and ecologically sound development technologies What is needed here is a substantial leadership role by the leading actors in the world system—particularly the United States and the United Nations—in identifying potential ecological crises and dealing with them

For the most part this identification relates to the political and technological variables in any potential ecological crisis situation With regard to the social variables there is little that can be done from the outside to affect a society except, as pointed out above to try and prevent ecological refugees from resorting to militant actions The same can also be said for ecological threats with high system visibility—they have been so long in the making that little can be done about them in the short term

However to the extent that changes are made in the types of actors and the political and level of technology variables there is bound to be a reorientation of the development discourse in the direction of development planning and implementation that is compatible with both the social and the biological environments of the populations that are being subjected to the development process Given the ongoing changes in the world system described earlier the long term security imperatives of nation states might require them to reorient security investment away from defense spending and towards ecologically sustainable development. Needless to say the benefits to all parties would be considerable if transnational and international actors with stakes in the process were to aid in this reorientation

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42 In this regard see Paul Ekins *A New World Order Grassroots Movements for Global Change* (London New York Routledge 1992)